## CLAIMS

We claim:

1. A method of orienting a spherical object, comprising:

acquiring an image of a spherical object at an imaging station;

analyzing the image with a first computer to determine an orientation analysis;

transferring the object from the imaging station to orienting stations using a transfer mechanism; and

orienting the object to a predetermined orientation according to the orientation analysis;

wherein the orienting stations comprise first, second, and third stations each rotating the object about a single axis; the first, second, and third stations collectively orienting the object by rotation about axes that are alternately perpendicular.

2. The method of claim 1 wherein the object is a golf ball.

3. The method of claim 1 wherein the transfer mechanism comprises a walking beam or a rotary indexer.

4. The method of claim 2 wherein the rotary indexer is a cam-driven mechanical indexer.

5. The method of claim 2 wherein the rotary indexer is a servo-driven dial table.

6. The method of claim 1 wherein the transfer mechanism has a vacuum cup to hold the object.

7. The method of claim 1 wherein the transfer mechanism has a gripping member to hold the object.

8. The method of claim 1 wherein the transfer mechanism comprises a compliant object carrier that is movable translationally and substantially immovable rotationally.

9. The method of claim 8 wherein the compliant object carrier comprises a compliant bellows coupling.

10. The method of claim 8 wherein a holder cup has an internal cup diameter approximately equal to an outside diameter of the object, and the object helps to guide the object carrier to the rotation cup.

11. The method of claim 8 wherein a shot pin helps to guide the object carrier into alignment with a holder cup.

12. The method of claim 8 wherein a V-block mechanism helps to guide the object carrier into alignment with a holder cup.

13. The method of claim 1 wherein a driven cup clamps onto, and rotates, the object after the transfer mechanism indexes the object.

14. The method of claim 1 wherein at least one of the orienting stations is at least partially mounted onto the transfer mechanism.

15. The method of claim 14 wherein the second station comprises a spindle mounted onto the transfer mechanism.

16. The method of claim 15 wherein a motor mounted on the transfer mechanism rotates the spindle to rotate the object.

17. The method of claim 16 further comprising acquiring an image of the object as the motor rotates the object.

18. The method of claim 15 further comprising driving the spindle with a friction wheel to rotate the object.

19. The method of claim 15 further comprising magnetically coupling a motor onto the spindle to rotate the object.

20. The method of claim 15 further comprising pushing the spindle with a friction coupling to rotate the object.

21. The method of claim 15 further comprising sliding the spindle into an engaged position wherein a motor is coupled to the spindle as the spindle slides into the engaged position.

22. The method of claim 21 wherein the spindle engages the motor through a blade and slot mechanism while the transfer mechanism indexes the object.

23. The method of claim 1 further comprising alternating a flow of data from the imaging station to the first computer with a flow of data from the imaging station to a second computer.

24. The method of claim 1 further comprising sending image data from the first computer to a second computer that computes and communicates the analysis to the orienting stations.

25. The method of claim 1 wherein two of the three alternate perpendicular axes are vertical.

26. The method of claim 1 wherein two of the three alternate perpendicular axes are horizontal.

27. A method of orienting a spherical object, comprising:

acquiring an image of a spherical object at an imaging station;

analyzing the image with a first computer to determine an analysis;

transferring the object from the imaging station to orienting stations using a transfer mechanism; and

orienting the object to a predetermined orientation according to the analysis.

28. The method of claim 27 wherein the transfer mechanism comprises a walking beam or a rotary indexer.

29. The method according to claim 27 wherein the transfer mechanism comprises a compliant object carrier that is movable translationally and substantially immovable rotationally.

30. The method according to claim 27 wherein a holder cup has an internal cup diameter approximately equal to an outside diameter of the object, wherein the object helps to guide the object carrier to the holder cup.

31. The method according to claim 27 wherein at least one of the orienting stations is at least partially mounted onto the transfer mechanism.

32. The method of claim 31 wherein the at least one of the orienting stations comprises a spindle mounted onto the transfer mechanism.

33. The method according to claim 27 wherein the imaging station is an image acquisition and object orienting station that comprises a gimbaled mechanism that rotates the object about three perpendicular axes without a transfer from one station to another station between the rotations.

34. The method according to claim 27

wherein the object is transferred to an orienting station that has a gimbaled mechanism that rotates the object about three perpendicular axes without a transfer from one station to another station between the rotations.

35. The method of claim 34 wherein an automated transfer mechanism transfers the object to the orienting station.

36. An orienter for a spherical object, comprising:

an imaging station having an image detector;

a computer that can determine an image analysis;

three orienting stations that operably receive the analysis and can rotate the object about perpendicular axes; and

a transfer mechanism having a compliant object carrier that is movable translationally and substantially immovable rotationally;

wherein the detector operably images an object, the computer operably determines the image analysis, and the three stations operate to orient the object according to the analysis.

37. The orienter of claim 36 wherein the object is a golf ball.

38. The orienter of claim 36 wherein the transfer mechanism comprises a walking beam or a rotary indexer.

39. The orienter of claim 36 wherein a holder cup having an internal cup diameter approximately equal to an outside diameter of the object can guide the object carrier to the holder cup.

40. The orienter of claim 36 wherein the at least one of the orienting stations is at least partially mounted onto the transfer mechanism.

41. The orienter of claim 40 wherein the at least one of the orienting stations comprises a spindle mounted onto the transfer mechanism.

42. The orienter of claim 36 wherein the orienting stations comprises a plurality of indexing wheels.